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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,464	06/25/2001	Douglas E. Bise	K-1816	8703

7590 08/21/2003  
Kevin P. Weldon  
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EXAMINER

GAY, JENNIFER HAWKINS

ART UNIT PAPER NUMBER

3672

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/888,464

Applicant(s)

BISE ET AL.

Examiner

Jennifer H Gay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 19-21, 23, 25-35 and 37-39 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19-21, 23, 25-35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 6-8, 14, 15, 19-21, 23, 25-28, 30-35, and 37-39 are rejected under 35 U.S.C. 103(a) as being obvious over Weaver et al. (US 2,894,726) in view of Galis (US 3,613,807).

*Regarding claims 1, 19, 23, 26, 32, and 37-39:* Weaver et al. discloses a rotary drag bit. The bit includes the following features:

- An elongate body (12) with a peripheral surface.
- An insert (generally located at "18") affixed to the axial forward end of the body and having a central longitudinal axis.
- Three discrete leading cutting edges (26) that are stepped.

It should be noted that the functional recitation that the steps improve the disintegration of the earth strata has not been given patentable weight because it is narrative in form. In order to be given weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 USC 112, 6<sup>th</sup> paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279. It has been held that the term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

Weaver et al. discloses all of the limitations of the above claims except for the insert being a monolithic hard insert.

Galis teaches a drill bit (29) that includes a monolithic hard insert (28 and 30, see Figure 1).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. to include monolithic hard insert as taught

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by Galis in order to have provided a substantial cutting force to the bit without damaging the insert (see col. 3, lines 1-5). One would have been motivated to make such a combination because a longer lasting drill bit would have been obtained, as inferred by Galis.

*Regarding claims 2, 8, and 33:* The stepped cutting edge includes an upper and lower step (28).

*Regarding claim 3:* The leading cutting edge of the upper and lower step are parallel (see Figures 1 and 2).

*Regarding claims 6 and 28:* The bit further includes a central longitudinal axis that passes through the insert and each of the leading cutting edges begins at a point radially outward from the central axis and extends away from that axis (see Figure 1 and 2).

*Regarding claim 7:* The leading cutting edges are formed by a corresponding leading edge of the insert that intersects the top surface of the insert (see Figure 1 and 2).

*Regarding claims 14, 20, 30, and 34:* The upper and lower steps have generally planar rake surfaces (see Figures 1 and 2).

*Regarding claims 15, 21, 31, and 35:* The angle of the lower rake surface is different from the angle of the upper rake surface (see Figure 28).

*Regarding claim 25:* The insert further includes a side clearance cutting edge (see Figures 1 and 3).

3. Claims 10-12, 16, 17, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Galis (US 3,613,807) as applied to claims 1, 2, 15, 23, and 26 above, and further in view of Brady (US 5,180,022).

Weaver et al. and Galis disclose all of the limitations of the above claims except for the cutting edges of the different steps having a rake angle between 0 and negative 15 degrees. In column 5, lines 20-60, Brady teaches a rotary mining tool that includes an insert with a rake angle between negative 5 and 35 degrees. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the drill bit of Weaver et al. in view of Galis so that the cutting edges of the different steps having a rake angle

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between 0 and negative 15 degrees as taught by Brady in order to have reduced the tensile load on the insert thus lengthening the life of the bit.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Galis (US 3,613,807) as applied to claims 1 and 2 above, and further in view of Nance (US 5,269,387).

Weaver et al. and Galis disclose all of the limitations of the above claims except for the upper step cutting edge having a relief angle of about 30 degrees and the lower step having a relief angle of about 21 degrees. In column 2, lines 20-40, Nance teaches a first relief angle between 30 and 60 degrees and a second relief angle between 18 and 35 degrees; the two different locations could broadly be considered an upper and lower step. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the cutting edges of the steps of Weaver et al. in view of Galis so that the upper step cutting edge having a relief angle of about 30 degrees and the lower step having a relief angle of about 21 degrees as taught by Nance in order to have provided a drill bit that had significantly improved effectiveness when drilling elongated roof bolt holes (see col. 2, lines 60-65).

5. Claims 1-3, 6-8, 14, 15, 19-21, 23, 25-28, 30-35, and 37-39 are rejected under 35 U.S.C. 103(a) as being obvious over Weaver et al. (US 2,894,726) in view of Dunn et al. (US 6,595,305).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in

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accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

*Regarding claims 1, 19, 23, 26, 32, and 37-39:* Weaver et al. discloses a rotary drag bit. The bit includes the following features:

- An elongate body (12) with a peripheral surface.
- An insert (generally located at “18”) affixed to the axial forward end of the body and having a central longitudinal axis.
- Three discrete leading cutting edges (26) that are stepped.

It should be noted that the functional recitation that the steps improve the disintegration of the earth strata has not been given patentable weight because it is narrative in form. In order to be given weight, a functional recitation must be expressed as a “means” for performing the specified function, as set forth in 35 USC 112, 6<sup>th</sup> paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279. It has been held that the term “integral” is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

Weaver et al. discloses all of the limitations of the above claims except for the insert being a monolithic hard insert.

In column 2, lines 5-15, Dunn et al. teaches a monolithic hard insert

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. to include monolithic hard insert as taught by Dunn et al. in order to have formed a drill bit that would effectively penetrate the earth with a reduced likelihood of failure. One would have been motivated to make such a combination because a longer lasting drill bit would have been obtained, as inferred by Dunn et al.

*Regarding claims 2, 8, and 33:* The stepped cutting edge includes an upper and lower step (28).

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*Regarding claim 3:* The leading cutting edge of the upper and lower step are parallel (see Figures 1 and 2).

*Regarding claims 6 and 28:* The bit further includes a central longitudinal axis that passes through the insert and each of the leading cutting edges begins at a point radially outward from the central axis and extends away from that axis (see Figure 1 and 2).

*Regarding claim 7:* The leading cutting edges are formed by a corresponding leading edge of the insert that intersects the top surface of the insert (see Figure 1 and 2).

*Regarding claims 14, 20, 30, and 34:* The upper and lower steps have generally planar rake surfaces (see Figures 1 and 2).

*Regarding claims 15, 21, 31, and 35:* The angle of the lower rake surface is different from the angle of the upper rake surface (see Figure 28).

*Regarding claim 25:* The insert further includes a side clearance cutting edge (see Figures 1 and 3).

6. Claims 10-12, 16, 17, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Dunn et al. (US 6,595,305) as applied to claims 1, 2, 15, 23, and 26 above, and further in view of Brady (US 5,180,022).

Weaver et al. and Dunn et al. disclose all of the limitations of the above claims except for the cutting edges of the different steps having a rake angle between 0 and negative 15 degrees. In column 5, lines 20-60, Brady teaches a rotary mining tool that includes an insert with a rake angle between negative 5 and 35 degrees. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the drill bit of Weaver et al. in view of Dunn et al. so that the cutting edges of the different steps having a rake angle between 0 and negative 15 degrees as taught by Brady in order to have reduced the tensile load on the insert thus lengthening the life of the bit.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Dunn et al. (US 6,595,305) as applied to claims 1 and 2 above, and further in view of Nance (US 5,269,387).

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Weaver et al. and Dunn et al. disclose all of the limitations of the above claims except for the upper step cutting edge having a relief angle of about 30 degrees and the lower step having a relief angle of about 21 degrees. In column 2, lines 20-40, Nance teaches a first relief angle between 30 and 60 degrees and a second relief angle between 18 and 35 degrees; the two different locations could broadly be considered an upper and lower step. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the cutting edges of the steps of Weaver et al. in view of Dunn et al. so that the upper step cutting edge having a relief angle of about 30 degrees and the lower step having a relief angle of about 21 degrees as taught by Nance in order to have provided a drill bit that had significantly improved effectiveness when drilling elongated roof bolt holes (see col. 2, lines 60-65).

#### ***Allowable Subject Matter***

8. Claims 4, 5, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

9. In response to applicant's statement that claims 8 and 23 were not explicitly rejected in the previous Office Action, the examiner notes that they were not included in the rejection heading but were included in the body of the rejection in paragraph 2. The examiner apologizes for any confusion and has corrected this error.

10. In response to applicant's inquiry as to if the examiner intended to use element "14" as the insert in Weaver et al. instead of element "18" as indicated, the examiner notes that element "14" is the blade on the insert and the examiner used element "18" to indicate the insert as a whole, i.e. to provide a general indication as to the location of the insert.



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11. In response to applicant's argument that Adams does not teach a monolithic insert because it is not constructed of a uniform material, the examiner notes that, based on applicant's definition of monolithic, it is agreed that Adams does not teach this feature. The rejection of the claims has been changed accordingly.

12. Applicant's arguments with respect to claims 1-17, 19-21, 23, 25-35, and 37-39 have been considered but are moot in view of the new ground(s) of rejection.

13. In response to applicant's argument that the examiner's conclusion of obviousness when combining Weaver et al., Adams, and Brady is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The examiner notes that the motivation for the combination of Brady with Weaver and Adams, now Galis or Dunn et al., can be found in column 5, lines 50-54 of Brady.

14. In response to applicant's argument that Nance can not be properly combined with Weaver et al. and Adams, now Galis or Dunn et al., because Nance only teaches a two cutting edge roof bit and does not disclose stepped cutting edges, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner notes that Nance was used merely to teach relief angles and the examiner did not indicate that Nance taught more than two cutting edges. Further, the two different relief angles taught by Nance are considered by the examiner to broadly teach stepped cutting edges.

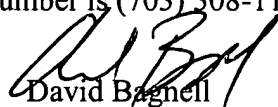
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
**Conclusion**

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Thursday, 6:30-4:00 and Friday, 6:30-1:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

  
David Bagnell  
Supervisory Patent Examiner  
Art Unit 3672

JHG   
August 13, 2003